TELEVISION

INTERESTING FACTS ABOUT THIS FASCINATING FIELD

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NEW ROCHELLE, N. Y.

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FOREWORD

Television principles taken individually are simple. The hobbyist who undertakes to familiarize himself with them soon finds himself absorbed in a fascinating venture. Before long he has acquired a good deal of basic scientific information which constitutes quite a step forward in the mastery of a field which, in toto, is one of the most complex of modern technology.

The purpose of this booklet is merely to serve as a general introduction. It is not a textbook. Its aim will be fulfilled if the interest of the reader is enlisted in television. Succeeding booklets are now in process of being written, rather more technical in scope, whose function it will be to enlarge on the initial interest by graded stages, to the point where the reader will have technical information on the theory and maintenance of television and FM.

EDUCATION DEPARTMENT

INCORPORATED

New Rochelle, N. Y.

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TELEVISION

Interesting facts about this fascinating field

Television Enhances Life

Of all our means of perception, vision is the most prized. The universe we live in presents itself to us most dramatically through the sense of sight.

Television enlarges the field of enjoyment of interesting sights and sounds — whether artificially created by showmanship or naturally created by news events.

Personal Participation, an Attribute of Televison

Television enables you to enter upon remote scenes and distant events taking place at the moment, thereby creating an atmosphere of personal participation. What a thrill!

Television's Attraction

The novelty of television is so fascinating, the appeal so engaging that each viewer immediately wants to own a set. Coupled with pride of possession is the natural desire to lead the field, to display the prize — to have the best television set.

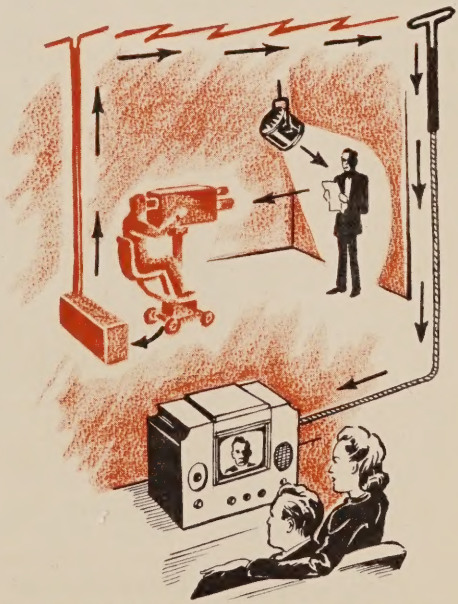
How Is Television Reception Accomplished?

Three practically simultaneous operations are required to accomplish the marvelous effects of television:

1. The scene to be televised must be *"picked up"* as a series of rapidly changing pictures.
2. These pictures must be *transmitted through space.*
3. The images must be *accurately reproduced* on a screen.

At the Television Camera

As is true in the case of the ordinary film camera, a lens system focuses light rays from the scene to be "picked up" upon a highly sensitized plate in the television camera. Naturally this plate is specially prepared. It is coated with thousands of insulated particles of a photo-sensitive substance called caesium, which possesses the remarkable characteristic of emitting electrons when light falls upon it. The more intense the impinging light, the richer is the current of electrons leaving the particle of caesium. Thus the pattern of high-



HOW TELEVISION RECEPTION IS ACCOMPLISHED

lights and shadows on the screen is matched by an electrical replica of varying intensity.

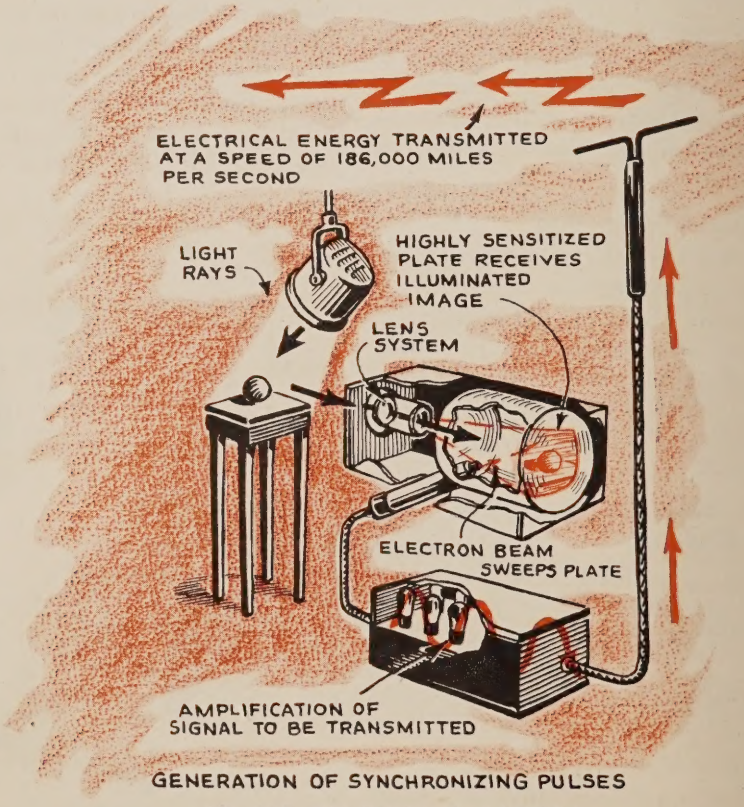
The Electron Gun

An electron gun sweeps a beam of electrons across the charged plate contacting successively all the particles in each line and eventually all the lines making up the image. The electrical impulses generated by the interaction of the electron beam with the charged particles of caesium are rapidly amplified and broadcast one after the other. All this takes place in an extremely small interval of time.

Interlaced Scanning

15,750 whole lines are thus scanned in one second. As each picture contains 525 lines, this means that 30 complete pictures are scanned in one second. To eliminate flicker, each picture (usually designated "frame") is scanned twice; first, the odd lines are scanned (constituting one "field"), then the even lines are filled in.

Consequently we say that 30 frames or 60 fields are transmitted every second. This is called "interlaced scanning."


ELECTRICAL ENERGY TRANSMITTED AT A SPEED OF 186,000 MILES PER SECOND
LIGHT RAYS
HIGHLY SENSITIZED PLATE RECEIVES ILLUMINATED IMAGE
LENS SYSTEM
ELECTRON BEAM SWEEPS PLATE
AMPLIFICATION OF SIGNAL TO BE TRANSMITTED

GENERATION OF SYNCHRONIZING PULSES AT THE TELEVISION CAMERA

Television Camera Tube Types

The sensitized plate and the electron gun are housed in an evacuated glass tube which is usually either the "iconoscope" or the "image orthicon." For us, the main difference between the two types of camera tube is that the image orthicon is smaller and much more sensitive. It can be used to pick up a scene even by candlelight.

Generally, What Is the Principle of Television Transmission?

Television pictures, as such, are not broadcast through space. An extraordinary transformation must take place — and does!

A complete television system accepts light energy upon a plate within a camera tube and transforms it into electrical impulses which are made to "ride" through space on a radio carrier wave of very high frequency.

Instantaneous Reception

All kinds of electrical energy travel at the enormous speed of approximately 186,000 miles per second, which means that the elapsed time between the actual happening of the event to be televised and its appearance on the screen of the receiver — is practically nil.

Transformation of Received Electrical Impulses into a Visible Image

At the home receiver the action of the television camera must be reversed. Here, the rapid series of varying electrical impulses must be changed back into the varying shades of light which form a picture and spread out over a screen.

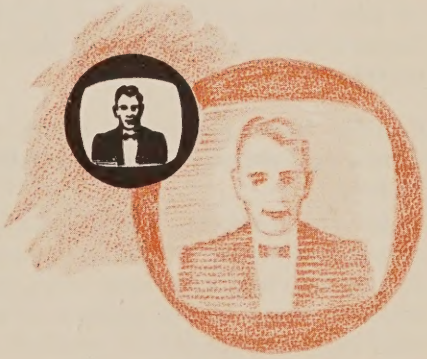
The Picture Tube—Kinescope

The television picture tube or "kinescope" is a cathode ray tube similar to those used in radar, loran, and the oscillograph. It contains two very important parts;— first, on its inner face it has a target or "screen" made up of a coating of a fluorescent substance which emits light when electronically bombarded. Second, it has an electron gun (much like that of the iconoscope or the image orthicon) which is made to scan a given area on the screen to form a "raster."

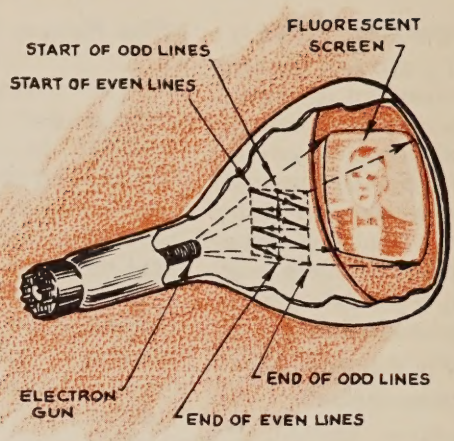
Examine the Screen of a Television Receiver Closely

You will observe that the picture is made up of hundreds of very narrow horizontal lines each consisting of hundreds of tiny dots varying in degree of brightness, which go to make up the picture.

But why is the picture broken up into its elements?



EXAMINE THE SCREEN
OF THE RECEIVER CLOSELY



THE PICTURE TUBE

Only One Electrical Impulse can be Transmitted on Radio Waves at a Time

Unlike a photograph, a television picture cannot be transmitted as a whole. The television frequency radio wave does not carry more than one electrical impulse, converted from light energy, at a time. To be transmitted, the picture must be broken into thousands of tiny dots which are rapidly changed into a series of electrical impulses which are consecutively reconverted into light at the screen of the picture tube (kinescope) in the receiver.

Rapidly Moving Electron Beam of Changing Intensity Traces Out the Picture

As the electron beam sweeps across the screen of the kinescope line by line synchronously with the electron beam in the camera tube, amplified signals of varying strength produce picture elements of similarly varying brightness. Thus element by element, and line by line a complete picture is traced out in one thirtieth of a second.

Motion of Images on Kinescope Screen Is Apparent, Not Real

Image succeeds image so rapidly that the eye cannot distinguish the intervals between successive flashes. The combination of persistence of glow on the screen of the kinescope and persistence of vision in the human eye produce the phenomenon of apparent motion.

FCC—Its Important Function

The Federal Communications Commission or "FCC" is an independent Federal Agency charged with the regulation of interstate and foreign communication by means of electrical energy transmitted along wires or radiated through space. One of its major functions is the allocation of radio frequencies to AM, FM and television broadcasting stations. Supervising communications in order to maintain adequate public service is its main purpose.

What is a Television "Channel"?

By the term "television channel" is meant that band of frequencies assigned by the FCC to a television broadcasting station. Within the same locality different channels are assigned to different stations. When television transmitters are far enough apart not to interfere with each other, they may operate on the same assigned channel.

For example:

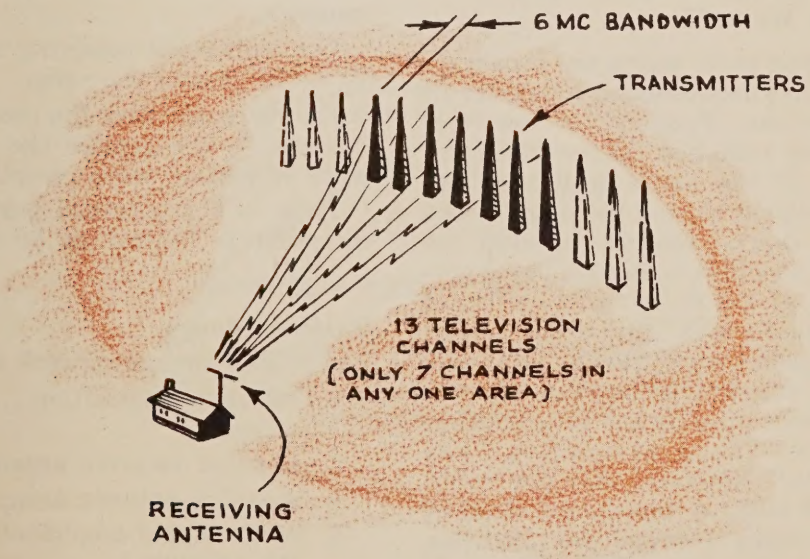
Channel 2	54-60	meg.	per	sec.
3	60-66	"	"	"
4	66-72	"	"	"
5	76-82	"	"	"
6	82-88	"	"	"
7	174-180	"	"	"
9	186-192	"	"	"
10	192-198	"	"	"
11	198-204	"	"	"
12	204-210	"	"	"
13	210-216	"	"	"

By the term "megacycles per second" is meant a frequency of alternation of one million times per second. Thus 76 meg. p. s. means 76 million cycles per second.

Of course, no one area will be served by all channels, the expectation being that seven channels will suffice.

Television Requires a Very Wide Band of Radio Frequencies

A picture with a great deal of detail has an enormous number of different picture elements and requires an extremely high radio frequency in order to carry all the rapidly changing electrical impulses. A picture with little detail, like that of a blank wall, requires a relatively low frequency. In order to depict accurately images with little detail, others with very fine



detail, and all others in between, a broad channel of frequencies is necessary. In fact—the channel is so broad that the entire broadcast band of all AM commercial stations would occupy only a small portion of one television channel.

Very High Frequencies Must Be Used

In order to accommodate both visual and accompanying auditory signals a television channel is six megacycles wide. To make room for all 13 assigned channels the very high frequencies must be used.

Low frequency radiation has a tendency to follow the curvature of the earth and can be picked up at a distance of several hundred miles. Very high frequency radiation behaves quite differently.

What Are "Ground Waves"—"Sky Waves"?

When radio waves are broadcast they are disseminated equally in all directions. Portions of low frequency radiation follow the curvature of the earth until they are attenuated beyond the point where they can be detected by even the most sensitive receivers. These portions of the radio wave are called "ground waves." Other portions of the radio wave radiate outward, and unless interfered with, will continue on outward into limitless space. These are called "sky waves." However, they are interfered with. A continuous cloud of electrically charged gas particles, called the ionosphere, about 60 miles from the earth, tends to reflect the lower frequency radio waves back to the earth. This makes very long range reception possible. The very high frequency television sky waves either pierce the ionosphere or are absorbed by it. In either case they are lost to us.

High Frequencies Limit Range of Television Broadcasts

The ground waves of the very high frequency television radiation are rapidly attenuated.

The sky waves are lost to us.

Only direct, line of sight transmission is left. As the radio waves of television are of such frequency that they have a tendency to travel in almost straight lines, the curvature of the earth imposes the horizon as the practical limit of reception.

The higher the transmitting antenna—the greater is the range of reception.

The higher the receiving antenna — the greater the range.

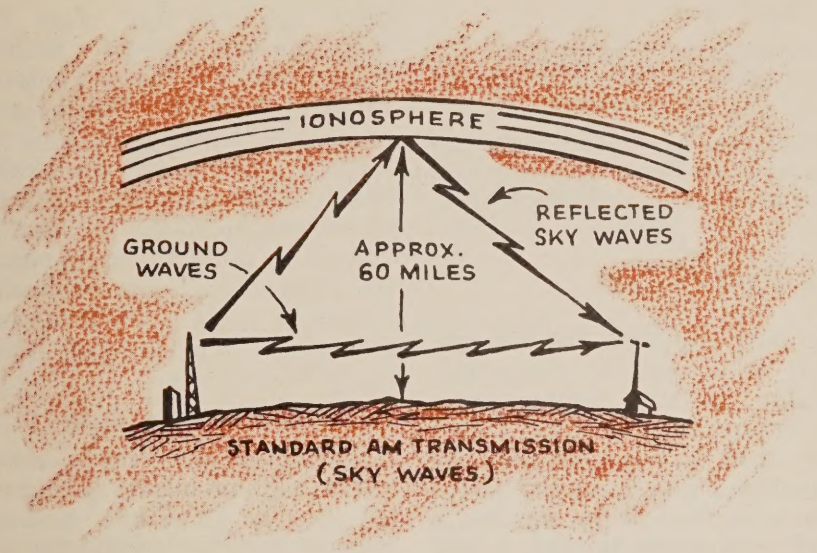
The more sensitive the receiving antenna — the greater the possibility of ground wave reception.

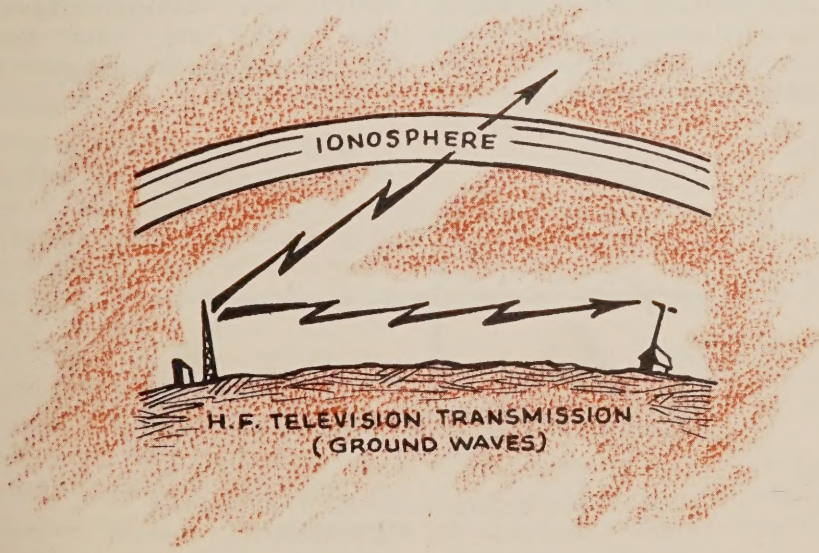
Thus — for practical purposes, reception is limited to 50 miles.

Maximum Range

Under ideal conditions such as:

1. elevated transmitter antenna,
2. elevated receiver antenna,
3. sensitive antenna array,
4. better signal amplification at the receiver,
5. high power transmitter,


IONOSPHERE
GROUND WAVES
APPROX. 60 MILES
REFLECTED SKY WAVES
STANDARD AM TRANSMISSION
(SKY WAVES)


IONOSPHERE
H.F. TELEVISION TRANSMISSION
(GROUND WAVES)

6. optimum intervening terrain (such as sea water or marshy flats) and
7. careful installation

direct line aerial reception can be had at 125 miles. Television networks of coaxial cable or of microwave relay stations, at present in operation, extend the range by far.

Antenna Requirements

For best reception the antenna should be turned or "oriented" broadside to the coming radio wave. It should be of a particular length (half a wave length) determinable by a very simple formula. The basic form of the antenna is the "T" shape dipole. The folded dipole is a good all purpose antenna.

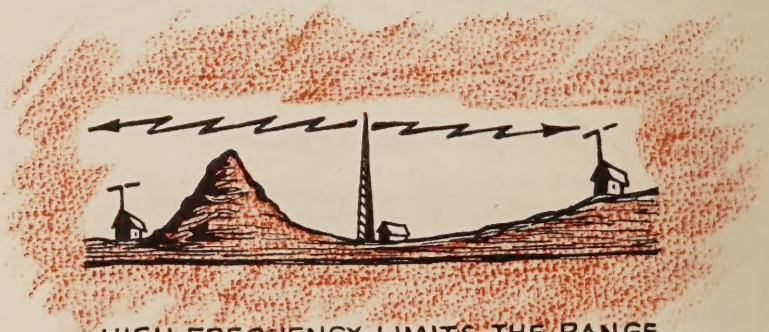
In metropolitan areas, close to the television broadcast station, an indoor antenna will very often give quite satisfactory results.

Master Antenna

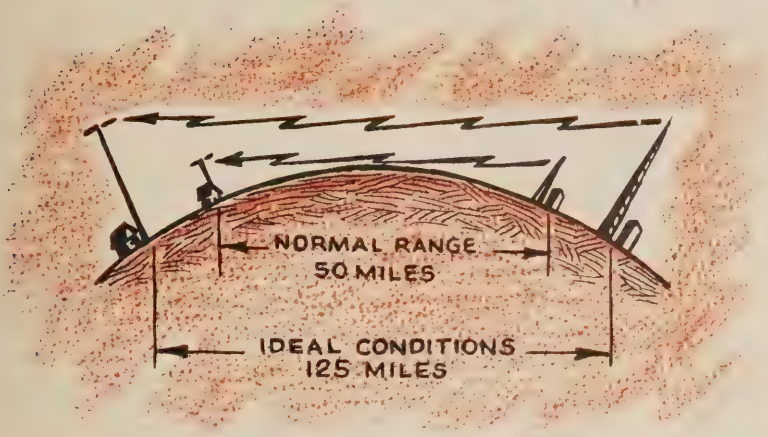
Apartment houses, hotels and office buildings are often faced with special antenna problems. An antenna, the "master antenna", has been designed which permits a number of receivers to tune in to different television broadcasting stations simultaneously. Although at present the master antenna is an expensive piece of equipment, as the demand increases original engineering costs will be absorbed and the cost of a single unit is bound to decrease.

Sound Accompanies Sight

The picture or "video" portion of a television broadcast is transmitted on an amplitude modulated carrier. In order to make use of its superior fidelity and interference rejection the sound or "audio" part is transmitted on FM. Two transmitters are required. However, both "audio" and "video" signals are received on the ordinary television receiver.



HIGH FREQUENCY LIMITS THE RANGE OF TELEVISION RECEPTION



Is Another Radio Required for the Sound or "Audio" Portion of the Television Program?

No. Both features are combined in one instrument.

What Television Programs are Available Now?

As far as possible diversified programs are broadcast to satisfy all interests. Some "live" programs, such as sporting events and spot news, originate wherever they happen to occur. Other live programs, such as music, drama, variety shows, dance recitals and serials may originate in a studio.

16 mm. or 35 mm. film may be utilized for broadcast purposes from special projection devices.

Whenever feasible, programs are scheduled for the most convenient periods of the day — usually during the afternoon and evening.

Will a Regular Radio Pick Up the "Audio" Part of a Television Program?

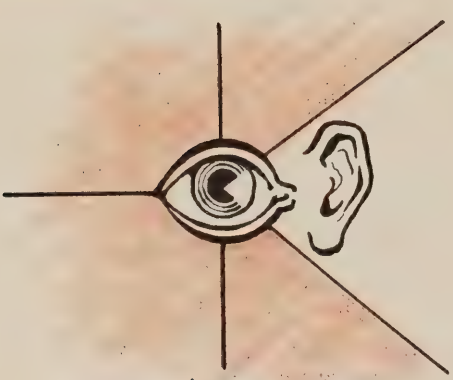
No, not unless the program is broadcast for radio and television simultaneously. There is an extremely wide difference in the frequencies involved. It must also be remembered that the regular radio is amplitude modulated and the "audio" part of a television program is frequency modulated.

Can a Television Set Pick Up a Regular Radio Program?

Only if the regular radio program is being televised at the same time, or if the television set has a built-in AM radio.

FM radio programs can be picked up on the average television set if it utilizes the principle of "continuous" tuning.

Of course, some television sets have built-in FM radios.



SOUND ACCOMPANIES SIGHT

Meaning of "Telecast"

"Telecast" is just a short way of saying "television broadcast."

Network Telecasts

That television network operation will be evolved covering the nation from coast to coast is unquestionable. We have such coverage between such large metropolitan areas as Washington, D. C., Baltimore, Philadelphia, New York, and Boston at present. Plans are being made even now for much wider coverage.

The two techniques now employed are those of coaxial cable and the microwave relay system.

Microwave Relays

Stations operating on extremely high frequencies pick up television signals and rebroadcast them on special beam antennas. These relay stations are located from 12 to 25 miles apart on the highest elevations obtainable.

Coaxial Cable

Some television programs are sent along specially laid and constructed cable called coaxial. This type of cable has a central wire core surrounded by a sheath of plastic insulation or by spacers. Around the insulation is a conductive metal tube which is in turn protected by a wrapping of insulation. Thus, in place of the usual pair of parallel wires completing a circuit we have a concentric pair, one surrounding the other but insulated from it. The great advantage of using coaxial cable is that it minimizes attenuation of the signal.

Stratovision

In order to extend the range of television transmission, plans have been made to have planes flying continuously in pairs at high altitudes picking up broadcasts and relaying back to earth. In this manner it is expected to extend coverage to the point where more than 75% of our population will have television available to them.

Remote Pickup

Where programs originate in some place other than the specially equipped studio — such as in spot news or sport events — mobile cameras pick up the scene and transmit it over telephone cable back to the main transmitter whence it is broadcast.

Picture Size

Picture tubes vary in diameter from three to twenty-four inches. The largest tube made commercially is about twenty inches in diameter. The actual picture is the size of the largest rectangle whose aspect

ratio is 4 to 3 which can fit into the face of the tube. Thus a 7" tube is capable of producing a picture with a surface area of 25 square inches.

A lens placed in front of the screen of the picture tube naturally enlarges the image.

Screens—Direct View and Projection

In looking at a direct view television set one sees the picture exactly as it is received on the face of the kinescope.

A projection television set uses high voltage which produces a picture bright enough to be reflected by several mirrors, pass through at least one correction lens and yet appear with acceptable brightness and contrast on a screen.

May the Television Set be Moved from Room to Room?

Yes, within reason. Suitable antenna connections must be maintained and electrical interference must be avoided as far as possible.

Is Tuning-in Difficult?

Not at all. Tuning-in to a desired channel is as simple as tuning-in the ordinary radio. Many sets have push button tuning. There usually are some further controls such as: fine tuning, sound control, tone control, brightness or contrast, but these refinements are mainly for the purpose of suiting individual taste. Tuning-in on the desired channel yields both sight and sound.

Are There any Electrical Hazards?

Transvision kits are engineered with special pains taken toward safety:

1. The bottom of the chassis has a separate cover,
2. An interlock switch automatically opens the circuit when the cover is removed from the 7 or the 10 inch set,
3. Protruding shafts are mounted with special insulation wherever necessary,
4. The high voltage tubes are protected by insulated caps.

How Many Tubes are Usually Found in a Set?

The number of tubes in a television set may vary from 18 to 45. However, the number of tubes is not, by itself, a measure of the merit of a set. Other factors are also determinative, such as:

1. quality of engineering design,
2. special features,
3. quality of component parts.

Do Tubes Need Frequent Replacement?

Not any more frequently than necessary in any good radio.

Are the Tubes Hard to Obtain?

Not at all. — All tubes can now be obtained in any quantity.

Color Television

Although color television will no doubt be further developed and then approved by the FCC, it will take several years before it is perfected and adequately field tested. The fact that television has not progressed to the point it will eventually reach is not a decisive argument against enjoying the pleasures it now provides. In all

probability, when color television arrives, along with it will come some inexpensive adapter which will make it possible for the present black and white set to receive color television broadcasts—but in black and white.

Television Prospects

Transvision is making a marked effort in the direction of producing excellent but inexpensive equipment in the form of kits for home assembly. The Transvision kit, while giving equal or better performance, cuts the cost to a fraction of that of the completed set.

Should a Television Set Be Purchased Now?

Most assuredly!

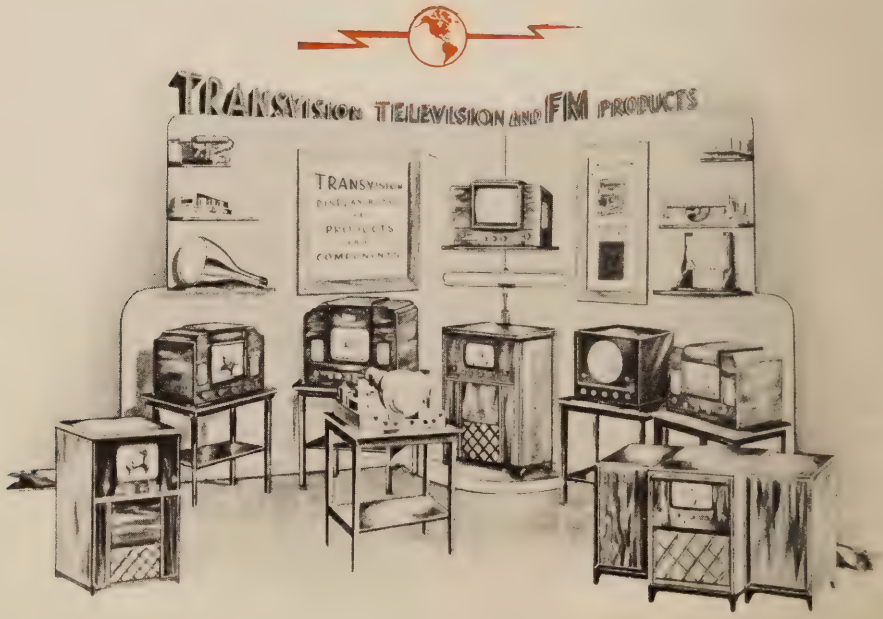
It combines in one instrument:

Sports
News
Visual Education
- Science
- Art
- Sports Skills
- Dancing
- Forum Discussions
- Quiz Programs

Musical Performances
- Opera
- Concert

Advertising Materials
Theatrical Entertainment
- Variety
- Drama
- Ballet.

Television offers a cross section of the highlights of life's experience.



INTERESTING FACTS ABOUT THE TRANSVISION KITS

Can anyone assemble a Transvision Kit?

Anyone who can read and follow simple directions can assemble this kit. Since each part is numbered and directions are complete no one has any trouble. Many thousands of people — and the number increases at the rate of almost two thousand per month — have assembled these kits. Even housewives who never even have seen a soldering iron before have assembled kits. The only tools required are a screw driver, a soldering iron, and a pair of pliers.

Are any other costs involved? Is the Transvision Kit complete?

Transvision kits are complete in every detail. A high quality television antenna is supplied together with the cable for connecting the antenna with the finished kit. This antenna and cable alone are worth almost $15. Not another penny is needed for parts or installation.

What happens if a set is assembled and fails to operate, or breaks down after a period of operation?

Transvision has service agencies in all areas where Transvision kits are sold. If the set does not operate, these agencies will correct all errors at a reasonable cost. This cost rarely exceeds $10.

What are the advantages of putting a Transvision Television Kit together?

There are many advantages of assembling a Transvision kit. Some of these are given below:

a. The kit, when assembled, is a *high quality television receiver worth much more than its purchase price.*

b. Installation *costs are saved* because antenna, connecting lines and complete directions are supplied.

c. Putting a set together is an *education* in television. Thousands purchase the kits for this reason alone.

d. The set never becomes obsolete, because Transvision passes on improvements to kit purchasers so that these can be incorporated inexpensively and easily.

e. It is *wonderful fun.* Businessmen, doctors, lawyers, clerks, etc. have found it an extremely relaxing and enjoyable pastime.

How is a Transvision set constructed?

Simple clear directions are followed which any one can understand. For example a step might read:

Take wire No. 185 and connect

pin No. 8 on socket A to pin No. 7 on socket B as shown on Diagram A. Photographs are shown too, so that a person wiring also has an actual picture of how to proceed.

Is it difficult to install the antenna?

This is a very simple operation. Directions are complete and easy and all materials are supplied. The Transvision antenna is designed for easy assembly and good performance.

Is the set dangerous? Is it possible for a careless person to get a shock?

Every Transvision Television kit has shields covering the hi-voltage electrical parts. A person could deliberately remove these shields and get a shock. Otherwise everything is well protected.

What kinds of components are used in the Transvision Set?

Transvision is one of the *major television manufacturers,* and designs many of its own parts. The others are purchased from the suppliers of only the highest quality components. All Transvision parts are the best quality available.

What does Transvision guarantee?

Transvision guarantees that if the set is wired without any mistakes, it will operate. *All parts are guaranteed against defects for 90 days.*

How many kinds of Transvision Television Kits are there?

Transvision has many kinds of television kits. The number is constantly increasing. At the time this booklet was printed Transvision had the kits listed below:

a. **7" Kit** — This has a 25 sq. inch picture. When one sits about 4 feet away it looks as big as a moving picture. Ten people can sit around a 7" kit and enjoy the picture.

7" Kit with FM Radio—Same as above with an attachment enabling one to receive all the FM radio stations.

b. **10" Kit** — This has a 52 sq. inch picture — about two times the size of the 7". Otherwise the kit is similar to the, 7"kit.

10" Kit with FM Radio—Same as above with attachment enabling one to receive all the FM radio stations.

All the above kits are what is known as electrostatic type.

c. **12" Kit** — This has a 75 sq. inch picture and is three times the size of the 7" kit. One can sit at the end of a 15 foot room and comfortably enjoy this picture size. As many as 30 or more people can view a picture this size.

The 12" kit comes in 3 models:

12" standard — selects stations by a device known as band switching—this is similar to push button tuning.

12" standard with FM—same as the above with FM radio, receiving all the FM stations.

12" Deluxe — same as standard except that it selects stations similar to a home radio — by turning a knob con-

tinuously to the station. This set also includes FM radio and the amateur band. In television this method of tuning in a station is considerably more expensive than the band switching technique. It also has a more attractive dial.

d. **15" Kit** — approximately 120 sq. inches—almost two times the size of the 12". This is really large view television. Many people feel it is just a little too large for an average living room, but many prefer this extremely large size. It comes in the same models as the 12" kit.

The 12" and 15" type kits are known as the electro-magnetic type.

What kinds of cabinets are available for Transvision Kits?

The Transvision cabinets are furniture finished, beautifully designed cabinets. They are available in *table model* or in *console form,* with *room for radio, FM, record-changer,* etc. or just television. Transvision cabinets have a reputation for fine finish and beauty.

How Long Does It Take to Construct a Transvision Set?

By actual time check it has been found that even the most inexperienced hobbyist can put together the Transvision Television Kit in 40 hours. Of course, an expert can complete the job in much less time.

How Much Would It Cost to Have the Set Constructed by Someone Else?

Prices vary, but an expert technician should charge approximately $50 for assembling a Transvision Television Kit.

Is an Outdoor Antenna Necessary?

No. Indoor antennas have been developed that are more than satisfactory. Of course, in certain areas, remote from television broadcasting stations, outdoor antennas placed as high as possible improve antenna sensitivity. However, in metropolitan areas near television transmitters, where the signal strength is great, indoor antennas often perform satisfactorily.

What is the Approximate Range of Transvision Sets?

The normal range for any television set is *approximately fifty miles.* Under special conditions, of intervening terrain, antenna installation, and signal strength, adequate television reception can be had over a distance of 125 miles. Transvision kits have been found to be exceptionally sensitive.

What are the Weights and Dimensions of Transvision Television Kits?

The completed *7" kit* is 17" wide, 15" deep, and 17" high. In kit form its shipping weight, in three cartons, is 52 lbs.

The completed *12" kit* is 22" wide, 17" deep, and 15" high. In kit form its shipping weight, in three cartons, is 70 lbs.

How Many Tubes are Used in Transvision Television Kits?

The standard 7" Transvision Television Kit has 19 tubes including the kinescope tube (7EP4). With

the audio section converted to ratio detection FM the kit has 20 tubes.

The 12" Transvision television kit has 23 tubes including the kinescope tube (12JP4).

How Much Does It Cost to Operate a Transvision Set?

The power consumption of the Transvision 12" Television Set amounts to about 270 watts; that of the 7" set is about 200 watts. Using an average value for the cost of electric power it should cost less than 1 cent per hour to operate either model.

Can Transvision Sets be Converted to Larger Screen Models?

Yes. Transvision, Inc. has engineered its kits with a sufficiently wide margin of extra performance for the 7" kit to be easily converted to a model with a 10" screen; and for the 12" kit to be simply converted to a model with a 15" screen. Transvision specially constructed lenses are capable of enlarging the image much further without distortion.

What is Meant by FM Sound Conversion on the 7" Transvision Television Kit?

The sound channel on the standard 7" Transvision Television Kit operates efficiently on slope detection. For those who wish to utilize the newest type of FM, Transvision offers an inexpensive conversion kit which operates on the principle of ratio detection.

Does This Give FM Stations as Well?

No. Transvision has engineered several models to accommodate the FM radio broadcast band. The purpose of the FM sound conversion kit, however, is to pass on the most recent developments in FM audio detection to purchasers of the standard 7" Transvision television kit.

Can the Transvision Television Kit Be Adapted to the Reception of FM Radio Broadcasts?

Certainly!

Transvision produces special FM Radio Conversion Units which may easily be added or adapted to the Standard Transvision Television Kits. These units will receive FM radio broadcasts.

Is the Deluxe Model of the Transvision 12" Kit Any More Difficult to Assemble Than the Standard Model?

No. It is just as easy to assemble the Deluxe Model as the Standard, the main difference being in the tuning unit which comes as a complete unit in either model.

Some advantages in this model are:

1. *Reception on the amateur band is possible.*
2. *F.M. Radio reception is available.*

Why are Transvision Products Never Obsolete?

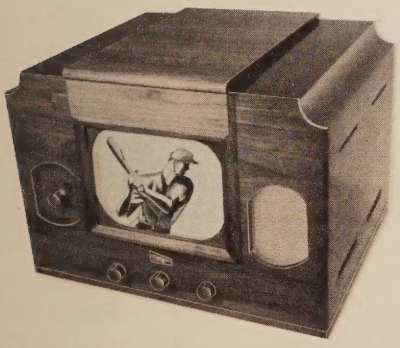
The F.C.C. has so standardized the essential features and characteristics of television broadcast and reception that they will remain essentially unchanged for some time. However, in our rapidly expanding technology many improvements are bound to be discovered within the framework of the standards set

by the F.C.C. The Transvision engineering staff is constantly engaged in the process of working out new developments and improvements and then setting up effective, inexpensive means of adapting them to our products. Transvision products are thus never obsolete.

Some Other Items Transvision Produces?

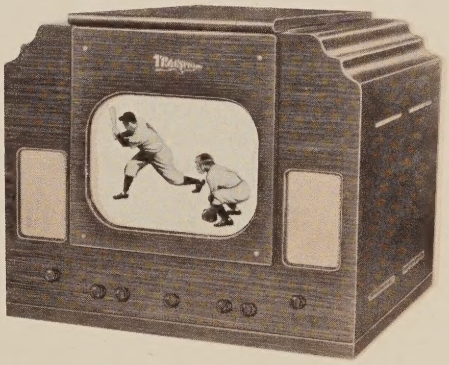
For the assistance and convenience of the television enthusiast Transvision, Inc. produces:

1. Transvision **Picture Enlarging Lenses** for the 7, 10 and 12 inch screen models, enlarging these images to 10, 12 and 15 inches.
2. An **8 tube Transvision FM radio receiver kit,** complete and ready to operate when wired.
3. The **2 tube Transvision FM tuner front end,** permeability tuned.
4. The **3 tube Transvision FM tuner front end,** permeability tuned.
5. The **3 tube Transvision FM IF amplifier kit,** comprised of a ratio detector and two stages of IF, meant to be used with either the 2 or the 3 tube FM tuner.
6. The **6 tube Transvision FM IF high gain amplifier kit,** meant to be used with either the 2 or the 3 tube tuner.
7. The Transvision **"SOLDETRON" Featherweight Soldering Iron.**
8. Also a complete line of Transvision special accessories from the *highly sensitive "lazy H" antenna,* to the *console model 12" screen De Luxe television cabinet.*



12" Transvision Television Kit

The 12" Transvision Television Kit gives a picture area of 75 sq. in., or 3 times the size of 7" sets. One can sit at the end of a 15 foot room and comfortably enjoy this picture size. As many as 30 or more people can view a picture this size.



15" Transvision Television Kit

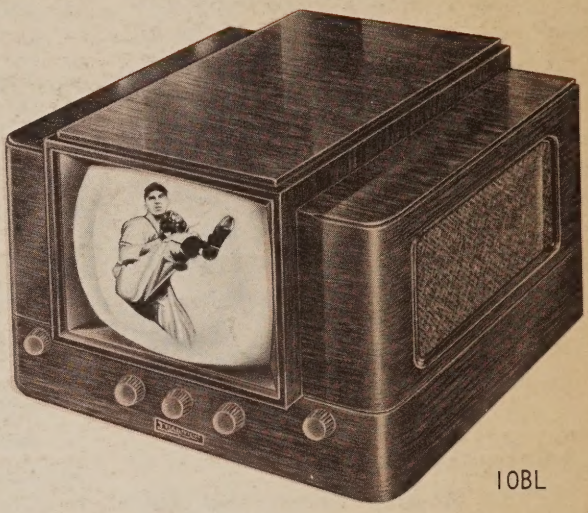
The 15" Transvision Television Kit gives a picture area of 120 sq. in. In general characteristics it is the same as the 12" kit, except that it uses a 15" cathode ray tube. FM Radio is a standard feature of all Transvision television kits.

When assembled, Transvision Television Kits become top-quality Television Receivers at tremendous savings in cost.

TRANSVISION

Large Image, High Quality Television at Low Cost

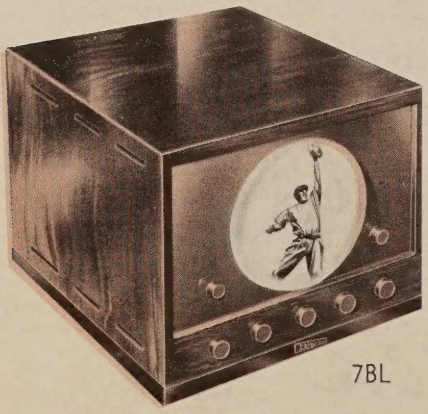
Build your own Television Receiver with a **120 Sq. In. Picture** of utmost clarity, contrast, and depth!



10BL

The New Transvision Model 10BL Television Kit gives you these outstanding features:—

- **Picture size of 120 sq. in.—almost 3 times the size of ordinary (52 sq. in.) sets.**
- **Built-in clarifier, which improves picture contrast and detail.** Gives depth and 3-dimensional effect, resulting in a life-like picture performance.
- Picture is clearly visible from practically any angle.
- Uses 10″ electromagnetic direct-view picture tube.
- Enlarging quality of the clarifier gives a giant size picture at an unprecedented low price.
- Receives all channels in any area; supplied complete with cabinet, antenna, and lead-in wire.
- A specially designed Roto-Table is a companion piece to this kit. The roto-table feature enables rotation of the completed set on the table. No need to re-arrange furniture; sit back comfortably and relax — just turn the set to face you.
- Streamlined cabinet design . . . hand-rubbed finish . . . size approx. 26″ wide x 17″ high x 19″ deep.
- FM Radio, a standard feature of these kits, comes completely factory wired. Makes your television set a "live" set when television programs are not on the air.



7BL

The New Transvision Model 7BL Television Kit

- **Gives 50 square inch picture of superior quality, at a very low price.**
- **Uses 7″ electrostatic picture tube.**

This popular new kit gives a picture performance the equal of 10″ sets because the built-in clarifier enlarges and improves the image, giving greater contrast, clarity, and depth.

Manufactured by Transvision, Inc., New Rochelle, N. Y. . . . Sold through leading distributors in all television areas.